

## WHAT IS CLAIMED IS:

1. A method of detecting the presence of a US-type or US-subtype hepatitis E virus (HEV) or a naturally occurring variant thereof in a test sample, the method comprising the steps of:

5 (a) contacting the sample with a binding partner that binds specifically to a marker for said virus, which if present in the sample binds to the binding partner to produce a marker-binding partner complex, and

(b) detecting the presence of said complex, the presence of said complex being indicative of the presence of said virus in the sample.

10 2. The method of claim 1, wherein said marker is an antibody capable of binding said virus.

3. The method of claim 2, wherein said antibody is an immunoglobulin G or an immunoglobulin M.

4. The method of claim 2, wherein said binding partner is an isolated polypeptide chain.

15 5. The method of claim 4, wherein said polypeptide chain is immobilized on a solid support.

6. The method of claim 4, wherein said binding partner is a polypeptide chain selected from the group consisting of SEQ ID NOS:91, 92, and 93, including naturally occurring variants thereof.

20 7. The method of claim 4, wherein said binding partner is a polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:173 or SEQ ID NO:175.

8. The method of claim 4, where said binding partner is a polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:174 or SEQ ID NO:176.

9. The method of claim 4, wherein said binding partner is a polypeptide chain selected from the group consisting of SEQ ID NOS:166, 167 and 168, including naturally occurring variants thereof.

10. The method of claim 4, wherein said binding partner is a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:223.

11. The method of claim 4, wherein said binding partner is a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:224.

12. The method of claim 1, wherein said binding partner is an isolated antibody capable of binding specifically to a polypeptide chain selected from the group consisting of SEQ ID NOS:91, 92, 93, 166, 167, and 168, including naturally occurring variants thereof.

13. The method of claim 12, wherein said antibody is a monoclonal antibody.

14. The method of claim 1, wherein said marker is a polypeptide chain.

15. The method of claim 14, wherein said polypeptide chain is selected from the group consisting of SEQ ID NOS:91, 92, and 93, including naturally occurring variants thereof.

16. The method of claim 14, wherein said polypeptide chain comprises the amino acid sequence set forth in SEQ ID NO:173 or SEQ ID NO:175.

17. The method of claim 14, wherein said polypeptide chain comprises the amino acid sequence set forth in SEQ ID NO:174 or SEQ ID NO:176.

18. The method of claim 14, wherein said polypeptide chain is selected from the group consisting of SEQ ID NOS:166, 167, and 168, including naturally occurring variants thereof.

19. The method of claim 14, wherein said polypeptide chain comprises the amino acid sequence set forth in SEQ ID NO:223.

20. The method of claim 14, wherein said polypeptide chain comprises the amino acid sequence set forth in SEQ ID NO:224.

21. The method of claim 1, wherein said marker is a nucleic acid sequence defining at least a portion of a genome of said virus, or a complementary strand thereof.

22. The method of claim 1 wherein said binding partner is an isolated nucleic acid sequence that is capable of hybridizing under specific hybridization conditions to the nucleic acid sequences set forth in SEQ ID NOS:89 and 164.

23. The method of claim 1 wherein said binding partner is selected from the group consisting of SEQ ID NOS:126, 128, 147, 148, 150, 152, 177, 178, 255, 256, 257, and 258.

24. The method of claim 1 wherein said binding partner is an isolated polypeptide chain.

25. The method of claim 1 wherein said test sample is a mammalian cell line.

26. The method of claim 41 wherein said mammalian cell line is a human fetal kidney cell line.

27. A method of detecting the presence of a hepatitis E virus (HEV) in a test sample, the method comprising the steps of:

(a) contacting the sample with a binding partner selected from the group consisting of SEQ ID NOS: 126, 128, 147, 148, 150, 152, 177, 178, 255, 256, 257, and 258 that binds specifically to a marker for said virus, which if present in the sample binds to the binding partner to produce a marker-binding partner complex, and

(b) detecting the presence of said complex, the presence of said complex being indicative of the presence of said virus in the sample.

28. An isolated polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:173, SEQ ID NO:174, SEQ ID NO:175, SEQ ID NO:176, SEQ ID NO:223 and SEQ ID NO:224.

29. An isolated antibody capable of binding specifically to a polypeptide chain selected from the group consisting of a polypeptide encoded by an ORF 1 sequence of a US-type or a US-subtype HEV, a polypeptide encoded by an ORF 2 sequence of a US-type or a US-subtype HEV, and a polypeptide encoded by an ORF 3 sequence of a US-type or a US-subtype HEV.

30. An isolated antibody capable of binding specifically to a polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:173, SEQ ID NO:175 or SEQ ID NO:224.

31. An isolated antibody capable of binding specifically to a polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:174, SEQ ID NO:176 or SEQ ID NO:223.

5 32. The isolated antibody of claim 30, wherein said antibody, under similar conditions, has a lower affinity for a polypeptide chain comprising the amino acid sequence set forth in SEQ ID NO:169 or 171.

10 33. The isolated antibody of claim 31, wherein said antibody, under similar conditions, has a lower affinity for a polypeptide chain comprising the amino acid sequence set forth SEQ ID NO:170 or 172.

34. The isolated antibody of claim 29 further comprising a detectable moiety.

35. An isolated nucleic acid sequence defining at least a portion of an ORF 1, ORF 2 or ORF 3 sequence of a US-type or US-subtype hepatitis E virus, or a sequence complementary thereto.

15 36. An isolated nucleic acid sequence capable of hybridizing under specific hybridization conditions to the nucleotide sequence set forth in SEQ ID NOS:89 and 164.

37. A vector comprising the isolated nucleic acid sequence of claim 35.

38. A host cell containing the vector of claim 37.

20 39. A method of immunizing a mammal against a US-type or US-subtype HEV, the method comprising administering to the mammal the polypeptide of claim 28 in an amount sufficient to stimulate the production of an antibody capable of binding specifically to the US-type or US-subtype hepatitis E virus.

25 40. A method of immunizing a mammal against a US-type or US-subtype HEV 1, the method comprising administering to said mammal the antibody of claim 29 in an amount sufficient to immunize said mammal against the US-type or US-subtype hepatitis E virus.

41. A method of immunizing a mammal against a US-type or US-subtype HEV 1, the method comprising administering to said mammal the antibody of claim 30 in an amount sufficient to immunize said mammal against the US-type or US-subtype hepatitis E virus.

5 42. A method of immunizing a mammal against a US-type or US-subtype HEV 1, the method comprising administering to said mammal the antibody of claim 31 in an amount sufficient to immunize said mammal against the US-type or US-subtype hepatitis E virus.

43. A method of immunizing a mammal against a US-type or US-subtype HEV, the method comprising administering to said mammal the host cell of claim 38 in an amount sufficient to immunize said mammal against the US-type or US-subtype hepatitis E virus.